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## Preface

In recent years, the development of combinatorial design theory has experienced explosive growth, both in theory and in its applications. This volume is dedicated to Zhu Lie, one of the world's leading experts in the field of combinatorial design theory, on the occasion of his 60th birthday.

Zhu Lie was born in Suzhou, People's Republic of China. He began his research in combinatorial design theory in the 1970s. China was in the midst of a political storm, the so-called Great Cultural Revolution. During that period, it was impossible for a Chinese scholar to undertake academic research without having keen enthusiasm and great devotion. In his early research, Zhu's interest concerned mainly the study of mutually orthogonal Latin squares and related topics, where his accomplishments are numerous. Of particular note was his short and elegant disproof of Euler's Conjecture, essentially relying only on a simple application of Sade's singular direct product. In 1983, Zhu Lie had his first opportunity to travel abroad. He was a visiting research scholar at the University of Waterloo, Canada, for the 2-year period from 1983 to 1985. It did not take long for his mathematical insight and ingenuity to be recognized by colleagues with whom he collaborated. Following his return to China in 1985, he built a design theory research group at Suzhou University and quickly established a leadership role in China in combinatorial design theory.

In 1986, Zhu was the worthy recipient of the prestigious award for Young and Middle-aged Experts with Outstanding Contributions by the Ministry of Personnel of China. Throughout his career, Zhu has published about 150 research articles. His diverse research contributions have encompassed large sets of Kirkman triple systems, Hadamard matrices, difference families, authentication perpendicular arrays, group divisible designs, resolvable designs, Steiner systems, perfect Mendelsohn designs, a variety of orthogonal arrays and connections with graph decompositions and coding theory. Indeed, his research work has been clearly marked by great breadth and depth. His contributions to design theory have directed research into new and exciting directions. For many years, he served as the Head of the Combinatorial Society of China. He was also elected to the editorial board of several international research journals.

Zhu is a pioneer researcher in China. In particular, he has devoted a significant amount of his time to the supervision of Ph.D. students, some of whom have gone on to gain a strong international reputation of their own. With an unselfish attitude and keen interest, Zhu has been influential in the careers of almost every young researcher in combinatorial design theory in China. In fact, the full significance of Zhu's research is perhaps best measured by its tremendous impact on the research of others. We take the opportunity, through editing this special volume, to express our thanks to

Zhu for his remarkable contributions and to honour him on the occasion of his 60th birthday.

This volume is a collection of 29 research papers on combinatorial design theory and related fields, that reflect certain of Zhu's interests. We thank the authors and the anonymous referees for helping us to produce this volume. We also hope that readers of this volume find the individual papers as useful and as enjoyable as we have.

Frank E. Bennett  
Charles J. Colbourn  
Ruizhong Wei  
Jianxing Yin